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TITLE : HYPERTHERMOSTABLE DNA LIGASE

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Met Ser Asp Met Arg Tyr Ser Glu Leu Ala Asp Leu Tyr Arg Arg Leu
 1           5           10           15
Glu Lys Thr Thr Leu Lys Thr Leu Lys Thr Lys Phe Val Ala Asp Phe
          20           25           30
Leu Lys Lys Thr Pro Asp Glu Leu Leu Glu Ile Val Pro Tyr Leu Ile
      35           40           45
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Arg Tyr Val Ala Leu Arg Glu Asp Lys Ser Pro Glu Glu Ala Asp Thr
590           535           540
Ile Glu Arg Val Ala Glu Leu Tyr Glu Leu Gln Glu Arg Phe Lys Ala
545           550           555           560
Lys Lys
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ABSTRACT : PROBLEM TO BE SOLVED: To obtain the stable subject new enzyme of a hyperthermostable DNA ligase containing a specific amino acid sequence, useful in a recombinant DNA technique or the like, and suitably usable for a ligase chain reaction(LCR) or the like.

SOLUTION: This hyperthermostable DNA ligase is the one containing an amino acid sequence of the 1- to 562-position of the formula, or the one of a modified body having an amino acid sequence having deletion, substitution or insertion of one to several amino acids in the amino acid sequence of the 1- to 562-position of the formula, and having a DNA ligase activities. The DNA ligase is an enzyme having activities for linking DNA chains, usable for a recombinant DNA technique or the like, and further usable for a ligase chain reaction or the like useful for the detection or the like of a target base sequence in a sample. The enzyme is obtained by separating chromosomal DNA from hyperthermostable archaeobacteria KOD-1 strain, making a chromosomal library by using the chromosomal DNA, screening the library by using the partial sequence as a probe, incorporating the obtained gene into a vector, and expressing the gene in a host.

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